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DEPARTMENT OF HOUSING

Innovative Housing Grants Program

A STRATEGY FOR ENERGY-EFFICIENT RESIDENTIAL LAND USE FOR THE CITY OF LETHBRIDGE

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INTRODUCTION:

This study was undertaken to produce an energy conservation strategy for the City of Lethbridge, with a focus on residential land use. The report is aimed at setting out those energy-efficient planning and house design guidelines that could have application in the City of Lethbridge and its planning and development process. Many of these guidelines could, however, have application in other communities.

The proposed strategy for Lethbridge is based on a demand or conservation approach to energy-efficiency which stresses:

1. Reducing energy consumption through measures aimed at improving transportation and land use efficiency; and
2. Reducing energy consumption in buildings; particularly residential structures.

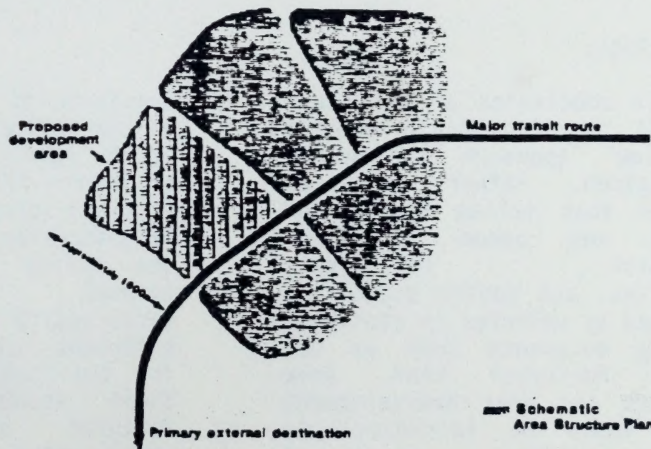


Figure 1: Public transit objectives combined with neighbourhood design objectives can provide an energy-efficient urban structure which incorporates essential neighbourhood activities and a range of population densities.

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METHODOLOGY:

The study included a comprehensive review of existing City planning documents and surveys of residents and of individuals involved in the housing industry. The findings of other studies related to energy-efficiency were also reviewed. The aim was to obtain opinions, attitudes and base data regarding potential energy conservation in housing and transportation. Several energy

conservation strategies were reviewed and assessed for their potential energy savings and ease of implementation. The objective was to produce a set of planning and house design guidelines, tailored to the unique characteristics of Lethbridge, that would encourage energy-efficient residential development.

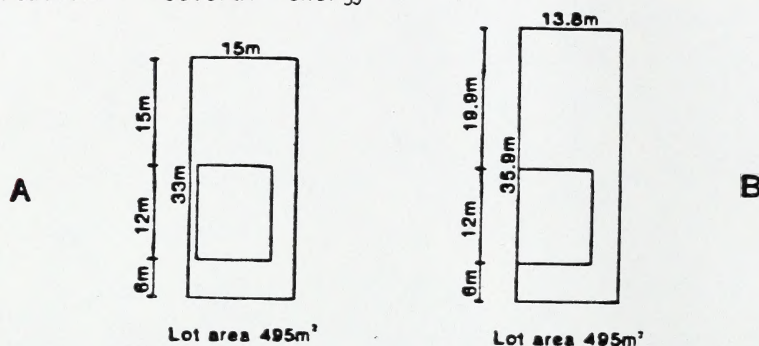


Figure 2: Lotting Arrangements. A slightly narrower but deeper lot (B) reduces the ratio of roads to lots, increases density and can with a zero side yard layout provide more usable yard space.

CONCLUSIONS:

The main conclusion of the study was that the City should adopt a "go slow" approach to energy conservation, rather than an approach that relies heavily on by-laws and other forms of regulation. Guidelines, incentives, and public education, supported by policies in statutory planning documents such as the General Municipal Plan, Area Structure and Area Redevelopment Plans, would be introduced to increase public awareness of energy conservation and encourage more efficient land use and transportation planning. Such guidelines would, for example, emphasize more land efficient lotting arrangements and measures to encourage increased public transit usage in the community and would be applied by the City in all of its subdivision design and review. Another important

component of this strategy would be the education and involvement of the public in the construction of energy-efficient housing. A City-sponsored Home Show and Demonstration Project, planned for the spring of 1984, will see several local builders constructing to the energy efficient standards established for the "Lethbridge Model" Home. These standards detail those features which should be incorporated in new home construction in order to achieve energy-efficiency and are tailored to Lethbridge's climate and energy needs. A cost-benefit approach to energy-efficiency, which balanced the incremental costs of energy-efficient construction measures with potential energy savings, was used to derive the standards for the "Lethbridge Model" Home.

LETHBRIDGE MODEL HOME
ENERGY CONSERVATION FEATURES

	<u>Insulation Level</u>
Ceiling	RSI 6 (R35)
Wall	RSI 4.9 (R28)
Basement	RSI 3.5 (R20)
Foundation Perimeter	RSI 1.3 (R8)

Other features include:
 air tightness
 double glazing
 mechanical ventilation
 heat exchanger

